CLAIMS

1. An implantable medical apparatus for detecting diastolic heart failure, DHF, comprising a DHF determining device for determining at least one blood pressure parameter for detecting a DHF state of the heart of a patient, **characterized in** that said DHF determining device comprises a pressure measuring means (2,10,12,16) for measuring pulse pressure in a cardiac cycle for a predetermined workload situation of the patient as said blood pressure parameter, and a comparison means (14) for comparing the measured pulse pressure with a predetermined reference value.

2. The apparatus according to claim 1, **characterized in** that said pressure measuring means (2,10,12,16) are adapted to measure the pulse pressure in a cardiac cycle for a predetermined workload situation and a rest situation of the patient, and in that said comparison means (14) is adapted to compare the difference between said pulse pressures measured in said workload and rest situations with a predetermined reference value for said difference for DHF detection.

3. The apparatus according to claims 1 or 2, **characterized in** that an activity sensor (6) is provided for determining the workload of the patient.

4. The apparatus according to any of the preceding claims, **characterized in** that an averaging means (14) is provided to form an average value of pulse pressures during a plurality of cardiac cycles with said predetermined workload situation and an average value of pulse pressures measured during a plurality of cardiac cycles with the patient in rest.

5. The apparatus according to any of the preceding claims, **characterized in** that a wireless communication means is connected to said comparison means (14) for automatically sending the results of the comparison of measured pulse pressures with said reference values to external receiver means.

6. The apparatus according to any of the claims 1 - 4, **characterized in** that a storing means (14) is provided for storing the results of the comparison of measured pulse pressures with said reference values.

7. The apparatus according to any of the preceding claims, **characterized in** that said pressure measuring means comprise a pressure sensor (2) adapted for placement in right ventricle (18) or coronary veins of the patient's heart.

8. The apparatus according to any of the preceding claims, **characterized in** that said pressure measuring means (2,10,12,16) are adapted to determine maximum and minimum pressures in a cardiac cycle.

9. The apparatus according to claim 1, **characterized in** that said pressure measuring means comprise a sensor for delivering photo-plethysmographic signals to be used for determing the pulse pressure.

10. A pacemaker, **characterized in** that it comprises an apparatus according to any one of the preceding claims and control means (20) for optimising pacing therapy depending on the result of the comparison of said measured pulse pressures with said predetermined reference values.

11. The pacemaker according to claim 10, **characterized in** that it comprises a rate responsive sensor (6) for determining the workload situation of the patient.

12. The pacemaker according to claim 10 comprising a pressure sensor, **characterized in** that said pressure sensor (2) is arranged as said activity sensor.

13. A method of detecting diastolic heart failure, DHF, comprising the step of determining at least one blood pressure parameter for detecting a DHF state of the heart of a patient, **characterized in** that said step of determining at least one blood pressure parameter comprises determining, as said blood pressure parameter, the pulse pressure in a cardiac cycle for a predetermined workload situation of the patient, and in that the determined pulse pressure is compared with a predetermined reference value.

14. The method according to claim 13, **characterized in** that said pulse pressure in a cardiac cycle is measured for a predetermined workload situation and a rest situation of the patient, and the difference between said pulse pressures measured in said workload and rest situations is compared with a predetermined reference value for said difference for DHF detection.

15. The method according to claims 13 or 14, **characterized in** that an average value of pulse pressures is measured during a plurality of cardiac cycles with said predetermined workload situation and an average value of pulse pressures is measured during a plurality of cardiac cycles with the patient in rest.

16. The method according to any of the claims 13 – 15, **characterized in** that the results of the comparison of measured pulse pressures with said reference values are automatically sent to external receiver means.

17. The method according to any of the claims 13 -16, **characterized in** that the pulse pressure is measured in right ventricle or coronary veins of the patient's heart.

18. The method according to any of the claims 13 - 17, **characterized in** that maximum and minimum pressures are determined in a cardiac cycle.

19. The method according to claim 13, **characterized in** that photo-plethysmographic signals are sensed for determining the pulse pressure.

20. The method according to any of the claims 13 - 19, **characterized in** that pulse pressures are measured for different workloads of the patient and for the patient in rest at an early time, when the patient is not suffering from DHF for determining said reference values.